AS 2243.1:2021

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Safety in laboratories

Part 1: Planning and operational aspects

AS 2243.1:2021

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The following are represented on Committee CH-026:

Association of Biosafety for Australia and New Zealand
Australian Chamber of Commerce and Industry
Australian Industry Group
Australian Institute of Occupational Hygienists
Australian Nuclear Science and Technology Organisation
Bureau of Steel Manufacturers of Australia
CSIRO
Environmental Science and Research New Zealand
Institution of Chemical Engineers
Ministry for Primary Industries, NZ
New Zealand Institute of Architects
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Originated in Australia as AS 2243.1—1979.
Jointly revised and redesignated as AS/NZS 2243.1:1997.
Previous edition 2005.
Sixth edition revised in Australia as AS 2243.1:2021.

Preface

This Standard was prepared by the Australian members of Joint Standards Australia/Standards New Zealand Committee, CH-026, Safety in Laboratories, to supersede AS/NZS 2243.1:2005.

After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian Standard rather than an Australian/New Zealand Standard.

The objective of this Standard is to provide general information, recommendations and procedures which will promote safe working in laboratories.

Major changes in this edition are as follows:

(a) Update of existing definitions and addition of new definitions and abbreviated terms.

(b) Addition of new clauses on electrical installations, as AS 2243.7—1991, *Safety in laboratories, Part 7: Electrical aspects*, is now obsolete.

(c) Addition of new clauses on nanotechnology and fieldwork.

(d) Update of existing Appendices. and addition of a new Appendix containing a field trip plan.

This Standard is Part 1 of an 8-part series designed to provide basic coverage of all important aspects of the safety function in laboratories. It deals with the general aspects of safety common to all kinds of laboratories and is intended to be used in conjunction with other Parts of the series, which relate to particular aspects of laboratory operations and to particular kinds of hazards. It emphasizes the importance of preventive measures and sets out safe practices, emergency procedures, and first aid.

The other Parts in the series are as follows:

AS 2243.2, *Safety in laboratories, Part 2: Chemical aspects and storage*

AS/NZS 2243.3, *Safety in laboratories, Part 3: Microbiological safety and containment*

AS/NZS 2243.4, *Safety in laboratories, Part 4: Ionizing radiations*

AS/NZS 2243.5, *Safety in laboratories, Part 5: Non-ionizing radiations — Electromagnetic, sound and ultrasound*

AS/NZS 2243.6, *Safety in laboratories, Part 6: Plant and equipment aspects*

AS/NZS 2243.8, *Safety in laboratories, Part 8: Fume cupboards*

AS/NZS 2243.9, *Safety in laboratories, Part 9: Recirculating fume cabinets*

The term “informative” is used in Standards to define the application of the appendix to which it applies. An “informative” appendix is only for information and guidance.

Contents

Introduction

Safety in laboratories is impacted upon by design and construction. When combined with systems of work that are based on the recognition of hazards and control of risks, and appropriate attitudes and behaviours, we have an integrated approach to achieving a safe workplace.

Everyone has a responsibility to work safely in laboratories. The aim is for every person to be able to make informed decisions based on sound risk management principles.

Top leadership has a duty to provide information, instruction, training and supervision, and to communicate and reinforce safety rules and work practices. Increased alertness is required with personnel who are at greater risk of injury because of their age, inexperience and unfamiliarity with the work surroundings.

It is recommended that a health and safety management system or a quality management system be adopted for the control and review of all laboratory practices and procedures.

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Section 1 Scope and general

1.1 Scope

This Standard sets out requirements, general procedures, precautions, recommendations and information designed to promote safety of persons and property in laboratory operations. The safety aspects described in this Standard apply to laboratory staff, maintenance staff, contractors, visitors and other authorized personnel, including students, cleaners and security staff who use or enter the laboratory facilities.

This Standard deals specifically with safe practices in laboratories and does not cover the design and construction of laboratories, which is covered in building regulations and is the subject of AS/NZS 2982.

1.2 Application

This Standard should be used in conjunction with the applicable part(s) of AS/NZS 2243 series that is relevant to the types of hazards commonly found in the laboratory and the common types of work being carried out in the laboratory.

For information for areas not covered within the AS/NZS 2243 series, refer to national, state or territory regulations. If the requirements of any part of this Standard conflict with any national, state or territory regulations, the statutory regulations apply.

While this Standard has been developed for laboratories in buildings, it may be used for guidance for laboratories and laboratory activities in other locations, such as in the field.

1.3 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document.

NOTE Documents for informative purposes are listed in the Bibliography.

AS 1530.4, *Methods for fire tests on building materials, components and structures, Part 4: Fire-resistance tests of elements of building construction*

AS 1851.1, *Maintenance of fire protection equipment, Part 1: Portable fire extinguishers and fire blankets*

AS 1894, *The storage and handling of non-flammable cryogenic and refrigerated liquids*

AS 2243.2, *Safety in laboratories, Part 2: Chemical aspects and storage*

AS 2252.1, *Biological safety cabinets, Part 1: Biological safety cabinets, (Class I) for personnel and environment protection*

AS 2252.2, *Controlled environments, Part 2: Biological safety cabinets Class II — Design*

AS 2252.5, *Controlled environments, Part 5: Cytotoxic drug safety cabinets (CDSC) — Design, construction, installation, testing and use*

AS 2444, *Portable fire extinguishers and fire blankets — Selection and location*

AS 4332, *The storage and handling of gases in cylinders*